

consideration. Further, claims 1 - 16 have been rejected based upon formal matters and over the art of record. By the present amendment and remarks, Applicants submit that the objections and rejections have been overcome, and respectfully request reconsideration of the outstanding Office Action and allowance of the present application.

Amendment to the Claims

Applicants note that the amendments to claims 1, 2, 3, 7, and 14 - 16 have been made to address formal matters and to clarify the recited terms without narrowing the scope of the claims. Moreover, as the amendments to at least independent claim 1 have been made merely to clarify recited terminology, Applicants submit that the amendment does not narrow the claim, and certainly does not narrow the claim for any reason related to the Patent Act.

Further, the amendment to paragraph [0007] was made to correct a translational error, in which “beetle roller” and “beetle” should have been indicated as “mallet roller” and “mallet,” consistent with the remainder of the disclosure. Applicants note that given the context of the terminology in paragraph [0007] and the remainder of the disclosure, this translational error is apparent, and it is clear the appropriate term is now presented.

Accordingly, Applicants submit that no estoppel should be deemed to attach to any of the pending claims, including amended claims 1, 3, 4, 7, and 14 - 16.

Traversal of Rejection Under 35 U.S.C. § 112, Second Paragraph

Applicants traverse the rejection of claims 1 - 16 under 35 U.S.C. § 112, second paragraph, as being indefinite.

Applicants note that, by the present amendment, claims 2, 3, 7, and 14 - 16 have been amended to address and overcome the formal matters noted by the Examiner. Accordingly, reconsideration of these rejections is requested.

However, Applicants traverse the Examiner's assertions that the term "consistent," as recited in at least independent claim 1, is indefinite. While the Examiner has noted two different meanings for the term, Applicants direct the Examiner's attention to paragraph [0002], which sets forth that the known process discussed in the "Field of the Invention" section (paragraph [0001]) produces highly consistent stock having a dry content ranging from about 15 to 35% to be dispersed.

Further, Applicants note that the term "consistent" is further clarified, e.g., in paragraph [0007], which sets forth that

[t]he mallet roller used according to the invention accepts the plug pieces compressed by the water being pressing out and breaks them up, in particular, by cooperation of the circulating mallets with the impact sections fixed to the circumference. Bigger chunks remain in the processing area longer until they can pass so that the stock flow to the dispersing machine becomes very even. [emphasis added].

Specification paragraph [0007]. Thus, it is apparent from the foregoing that highly consistent stock, as that term is utilized in the instant application, is to be broken up so as to prevent big chunks of consistent stock from being passed to the dispersing machine, and that one ordinarily skilled in the art would be fully able to ascertain the scope of the claims reciting the term "consistent."

With regard to the terms “mallet roll” and “mallet,” Applicants note that the instant application clearly utilizes this term in conjunction with the Figures to clearly and unambiguously apprise those ordinarily skilled in the art of the meaning of the term. Further, Applicants submit that, as the term is utilized throughout the instant application, one ordinarily skilled in the art reviewing the specification and claims would have been able to ascertain the scope of the claims from such review.

Traversal of Rejection Under 35 U.S.C. § 103(a)

1. Over WO ‘769 in view of FR ‘047 or FR ‘289

Applicants traverse the rejection of claims 1, 5 - 7, and 13 - 16 under 35 U.S.C. § 103(a) as being unpatentable over WO 96/18769 [hereinafter “WO ‘769”] in view of French Patent Application No. 1,239,047 [hereinafter “FR ‘047”] or French Patent Application No. 2,364,289 [hereinafter “FR ‘289”]. The Examiner asserts that WO ‘769 shows a system delivering an aqueous stock, pressing out water to form a highly consistent stock, introducing the stock in a predisperser to loosen and distribute the stock, transporting the stock from the predisperser to a second disperser, but fails to disclose a mallet roll. The Examiner further asserts that FR ‘047 discloses that a disk disperser and a mallet roll are alternative apparatuses for dispersing stock, that FR ‘289 shows a mallet roller dispersing stock, and that it would have been obvious to modify WO ‘769 to change the disk disperser to a mallet roll.

Applicants note that, as the instant invention is directed to feeding loosened and _____

distributed crushed material into a disperser, Applicants' independent claim 1 recites, *inter alia*, pressing some water out of the aqueous fibrous paper stock to form a highly consistent coarse fibrous paper stock, loosening and distributing the highly consistent stock by introducing the highly consistent coarse fibrous stock into an effective area of a *mallet roll* having circulating mallets extending from a rotating shaft which cooperate with fixed peripheral impact sections, thereby breaking up the highly consistent coarse fibrous stock passing between the mallets and fixed peripheral impact sections, transporting the loosened and distributed highly consistent fibrous paper stock into a dispersing machine, and dispersing the transported loosened and distributed highly consistent fibrous paper stock in the dispersing machine. Applicants submit that no proper combination of the applied documents teaches or suggests at least the above-noted combination of features.

Applicants note that, in contrast to the instant invention, WO '769 is directed to a special process in which a grinder is utilized in combination with a disperser for the purpose of avoiding the drawbacks associated with heating material in a large rotating screw. In other words, WO '769 replaces the heating screw with a heatable grinder, so that the material can be heated as it is ground prior to dispersing in a dispersing machine. From the figures of WO '769, it appears that the grinder elements have a similar structure to the dispersing tools of the dispersing machine.

While the Examiner acknowledges that the grinder of WO '769 is not a mallet roll,

the Examiner has cited either of FR '047 or FR '289 for purportedly teaching a mallet roll. However, Applicants note that, in contrast to the grinder of WO '769 and to the instant invention, FR '047 discloses a kneading process for adding bleach to stock. Thus, quite to contrary of the grinder of WO '769, FR '047 does not teach or suggest grinding and heating stock to forward to a disperser, but, instead, teaches that the bleach is added to stock as it is kneaded in the machine to ensure uniform mixing. Further, Applicants note that Figure 3 of FR '047 shows that, as an alternative to use in a kneading device, the process can be carried out in a disperser. Thus, Applicants submit that it would not have been obvious to one ordinarily skilled in the art to modify WO '769 to replace the heatable grinder with a kneading device for kneading bleach into stock.

Further, Applicants note that FR '289 discloses a device in which rotatable blades are positioned before a pair of rotating refining disks. However, the rotating blades do not provide any heating of the material to be refined, and, thus, Applicants submit that it would not have been obvious to one ordinarily skilled in the art to modify WO '769 to replace the heatable grinder with the rotating blades of FR '289.

Accordingly, in view of the above, Applicants submit that the art of record fails to provide any teaching or suggestion of the requisite motivation or rationale for combining WO '769 with either of FR '047 or FR '289 in any manner that would render the instant invention unpatentable.

Moreover, as the roll of FR '047 is structured to knead the stock, i.e., mix it together, Applicants submit that there is no teaching or suggestion of utilizing a mallet roll to break up a highly consistent stock, as recited in at least independent claim 1. Thus, as neither WO '769 nor FR 047 teach or suggests a *mallet roll having circulating mallets which cooperate with fixed peripheral impact sections, thereby breaking up the highly consistent coarse fibrous stock passing between the mallets and fixed peripheral impact sections*, Applicants submit that no proper combination of these documents can render unpatentable the combination of features recited in at least independent claim 1.

Still further, Applicants submit that as the rotating blades of FR '289 likewise fail to teach or suggest a mallet roll having circulating mallets *which cooperate with fixed peripheral impact sections, thereby breaking up the highly consistent coarse fibrous stock passing between the mallets and fixed peripheral impact sections*, as recited in at least independent claim 1, Applicants submit that no proper combination of WO '769 and FR '289 teaches or suggests the combination of features recited in at least independent claim 1.

Accordingly, Applicants request that Examiner reconsider and withdraw the rejection of at least independent claim 1. Further, Applicants submit that claims 5 - 7 and 13 - 16 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of WO '769 and FR '047 or FR

‘289 teaches or suggests, *inter alia*, the mallet roll is essentially horizontally positioned, and said process further comprises introducing the fibrous stock into the effective area of the mallet roll from above, as recited in claim 5; a worm extruder assists in the pressing of water out of the aqueous fibrous paper stock, as recited in claim 6; a transport direction in the worm extruder is essentially horizontal and an axis of the rotating shaft of the mallet roll is essentially horizontal and substantially perpendicular to the worm extruder transport direction, as recited in claim 7; dropping the fibrous stock, after passing the mallet roll, into a screw conveyor and centrally introducing the dropped fibrous stock into the dispersing machine via the screw conveyor, as recited in claim 13; heating the highly consistent fibrous stock while it is located between dispersing fittings of the dispersing machine, as recited in claim 14; introducing steam between the dispersing fittings and into the highly consistent fibrous stock, as recited in claim 15; and the dispersing fittings include a primary dispersing area and a ring shaped heating zone arranged radially inside of the primary dispersing area, and said process comprises introducing the steam into the ring shaped heating zone to heat the highly consistent fibrous stock, as recited in claim 16.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 1, 5 - 7 and 13 - 16 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

2. Over WO '769 in view of FR '047 or FR '289 and further in view of DE '653

Applicants traverse the rejection of claims 2 - 4 under 35 U.S.C. § 103(a) as being unpatentable over WO '769 in view of FR '047 or FR '289 and further in view of German Patent Application No. 197 12 653 [hereinafter "DE '653"]. The Examiner asserts that, while WO '769 does not provide specifics about the disperser, DE '653 shows details of a disperser, and that it would have been obvious to modify the asserted combination of documents to include the details of the disperser of DE '653.

Applicants note that, as DE '653 is directed to the dispersing machine *per se*, this document fails to provide any teaching or suggestion of the subject matter noted above as deficient in the asserted combination of WO '769 and FR '047 or FR '289.

In particular, Applicants note that DE '653 fails teach or suggest the requisite motivation or rationale for combining the above-noted documents in the manner asserted by the Examiner. That is, DE '653 fails to suggest that it would have been obvious to replace a heatable grinder such as disclosed by WO '769 with either a kneading machine or rotating blades, since neither secondary document suggests heating the material.

Further, Applicants submit that, like the other applied documents, DE '653 fails to teach or suggest a mallet roll having circulating mallets *which cooperate with fixed peripheral impact sections, thereby breaking up the highly consistent coarse fibrous stock passing between the mallets and fixed peripheral impact sections*, as recited in at least

independent claim 1. Accordingly, Applicants submit that no proper combination of WO '769, FR '047 or FR '289, and DE '653 teaches or suggests the combination of features recited in at least independent claim 1.

Further, Applicants submit that claims 2 - 4 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of WO '769, FR '047 or FR '289, and DE 653 teaches or suggests, *inter alia*, the dispersing machine comprises at least two dispersing fittings with several lines of teeth, the at least two dispersing fittings being arranged so that the several lines of teeth are intermeshed and spaced at a distance from each other, and said process further comprises rotating the at least two dispersing fittings relative to each other, as recited in claim 2; introducing steam into the highly consistent fibrous stock while it is located between the dispersing fittings, whereby the highly consistent fibrous stock is heated, as recited in claim 3; the dispersing fittings include a primary dispersing area and a ring shaped heating zone arranged radially inside of the primary dispersing area, and said process comprises introducing the steam into the ring shaped heating zone, as recited in claim 4.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 2 - 4 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

2. Over WO '769 in view of FR '047 or FR '289 and further in view of Davenport with or without DE '653

Applicants traverse the rejection of claims 8 - 12 under 35 U.S.C. § 103(a) as being unpatentable over WO '769 in view of FR '047 or FR '289 and further in view of DAVENPORT (U.S. Patent No. 6,045,070) with or without DE '653. The Examiner asserts that DAVENPORT uses a mallet roller to predisperse and shred paper stock to pieces less than 6 in prior to a disk disperser to reduce the energy required for dispersing, and that it would have been obvious to modify the asserted combination of documents to include the features of DAVENPORT with or without the features of DE '653.

As discussed above, DE '653 is directed to the dispersing machine *per se*, and, therefore, fails to provide any teaching or suggestion of the subject matter noted above as deficient in the asserted combination of WO '769 and FR '047 or FR '289.

Further, Applicants note that DAVENPORT discloses a shredding device for breaking up solids, however, in contrast to WO '769, Applicants note that the solids are then supplied to a agitatable receiving tank 16 before being sent to a grinder. However, like the other secondary documents of record, DAVENPORT fails to teach or suggest that the solids supplied by the grinder are heated, as required by WO '769.

Accordingly, Applicants submit that the art of record fails to teach or suggest the necessary motivation or rationale for combining the above-noted documents in the manner asserted by the Examiner. That is, neither DAVENPORT nor DE '653 suggests that it would

have been obvious to replace the heatable grinder of WO '769 with either a kneading machine of FR '047 or rotating blades of FR '289.

Further, Applicants submit that, like the other applied documents, both DAVENPORT and DE '653 fail to teach or suggest a mallet roll having circulating mallets *which cooperate with fixed peripheral impact sections*, thereby *breaking up the highly consistent coarse fibrous stock passing between the mallets and fixed peripheral impact sections*, as recited in at least independent claim 1. Accordingly, Applicants submit that no proper combination of WO '769, FR '047 or FR '289, and DAVENPORT with or without DE '653 teaches or suggests the combination of features recited in at least independent claim 1.

Further, Applicants submit that claims 2 - 4 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicants submit that no proper combination of WO '769, FR '047 or FR '289, and DAVENPORT with or without DE 653 teaches or suggests, *inter alia*, rotating the mallets at a circumferential speed in a range between about 1 to 5 m/s, as recited in claim 8; rotating the mallets at a circumferential speed of between about 2 and 4 m/s, as recited in claim 9; calibrating the highly consistent fibrous stock between impact sections positioned at a distance from each other, as recited in claim 10; adjusting a maximum amount of calibrated fibrous stock pieces in the longitudinal direction to a size in a range between about 5 to 50 mm, as recited in claim 11; and

transferring a specific work amount of less than about 1kWh/t from the mallet roll to the fibrous stock, as recited in claim 12.

Accordingly, Applicants request that the Examiner reconsider and withdraw the rejection of claims 8 - 12 under 35 U.S.C. § 103(a) and indicate that these claims are allowable.

Application is Allowable

Thus, Applicants respectfully submit that each and every pending claim of the present invention meets the requirements for patentability under 35 U.S.C. §§ 112, 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

Authorization to Charge Deposit Account

If for any reason a check including the amount for any necessary fees is not associated with this file, the Commissioner is authorized to charge to Deposit Account No. 19 - 0089 the amounts identified herein for the missing check, as well as any necessary fees not explicitly identified, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, in order to maintain pendency of this application.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants'

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invention, as recited in each of claims 1 - 16. The claims have been amended to eliminate any arguable basis for rejection under 35 U.S.C. § 112. In addition, the applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Further, any amendments to the claims which have been made in this response and which have not been specifically noted to overcome a rejection based upon the prior art, should be considered to have been made for a purpose unrelated to patentability, and no estoppel should be deemed to attach thereto.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,
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APPENDIX

Marked-Up Copies of the Amended Paragraphs:

Please replace paragraph [0007] with the following amended paragraph:

[0007] With the aid of this new process, it is possible to produce a highly consistent stock that can be perfectly processed in a dispersing machine. The [beetle] mallet roller used according to the invention accepts the plug pieces compressed by the water being pressing out and breaks them up, in particular, by cooperation of the circulating [beetles] mallets with the impact sections fixed to the circumference. Bigger chunks remain in the processing area longer until they can pass so that the stock flow to the dispersing machine becomes very even. Then, it is further reduced and swirled in the radially interior area of the dispersing armaments, creating very fine fibrous crumbs. If desired, steam is introduced subsequently downstream into a heating zone of the armaments in order to heat the stock to the required temperature. Here, due to the previous breaking up, a comparatively short heating duration is sufficient. The dispersing itself, i.e., the modification of the stock characteristics occurs in a dispersing zone of the device that follows downstream.

Marked-Up Copies of the Amended Claims:

1. (Amended) A process for dispersing fibrous paper stock comprising:
delivering an aqueous fibrous paper stock;
pressing some water out of the aqueous fibrous paper stock to form a highly consistent coarse fibrous paper stock;

loosening and distributing the highly consistent stock by introducing the highly consistent coarse fibrous stock into an effective area of a mallet roll having circulating mallets extending from a rotating shaft which cooperate with fixed peripheral impact sections, [whereby] thereby breaking up the highly consistent coarse fibrous stock [is loosened and distributed] passing between the mallets and fixed peripheral impact sections; transporting the loosened and distributed highly consistent fibrous paper stock into a dispersing machine;

dispersing the transported loosened and distributed highly consistent fibrous paper stock in [a] the dispersing machine.

3. (Amended) The process in accordance with claim 2, further comprising: introducing [water] steam into the highly consistent fibrous stock while it is located between the dispersing fittings, whereby the highly consistent fibrous stock is heated.

4. (Amended) The process in accordance with claim 3, wherein the dispersing fittings include a primary dispersing area and a ring shaped heating zone arranged radially inside of the primary dispersing area, and said process comprises:

introducing the [water] steam into the ring shaped heating zone.

7. (Amended) The process in accordance with claim 6, wherein a transport direction in the worm extruder is essentially horizontal and an axis of the rotating shaft of the mallet roll is essentially horizontal and substantially perpendicular to the worm extruder

transport direction.

14. (Amended) The process in accordance with claim 1, further comprising heating the highly consistent fibrous stock while it is located between [the] dispersing fittings of the dispersing machine.

15. (Amended) The process in accordance with claim 14, further comprising introducing [water] steam between the dispersing fittings and into the highly consistent fibrous stock.

16. (Amended) The process in accordance with claim 14, wherein the dispersing fittings include a primary dispersing area and a ring shaped heating zone arranged radially inside of the primary dispersing area, and said process comprises:
introducing the [water] steam into the ring shaped heating zone to heat the highly consistent fibrous stock.